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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,659	10/22/2001	Otto J. Prohaska	03141-P0380A WWW/DC	4969
24126	7590	11/08/2004	EXAMINER	
ST. ONGE STEWARD JOHNSTON & REENS, LLC			OLSEN, KAJ K	
986 BEDFORD STREET			ART UNIT	
STAMFORD, CT 06905-5619			PAPER NUMBER	
			1753	

DATE MAILED: 11/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/029,659

Applicant(s)

PROHASKA ET AL.

Examiner

Kaj K Olsen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-8 and 10-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,10-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 3-8 and 10-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 1 has been amended in a manner that is entirely confusing. First, applicant appears to be claiming a sensor “during the state of manufacturing”. The examiner is entirely confused as to how to interpret this new language. Is this language the intended use of the claimed product (i.e. a sensor at a particular point in time) or is this language drawn to the process of making the product? Clarification is requested. Either way, this doesn’t patentably distinguish the product. In particular, the process of using a device is the intended use of the product and the intended use need not be given further due consideration in determining patentability. With respect to the process of making, the determination of patentability for the claim is based on the product itself. Because the product of the claim is identical to the invention of any prior art (see below) the process from which it was made is the same as or obvious over the process utilized by that prior art (see *In re Thorpe*, 777 F.2d 695, 698). Alternatively, the examiner considered that the applicant might be attempting to claim an intermediate product of a final product. However, the “intermediate product” in this case would appear to be the exact same thing as the final product (i.e. namely a sensor having the set forth elements of the claim). There is nothing in claim 1 drawn to any incomplete state of sensor construction. Moreover, even though the office

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permits claims drawn to both intermediate and final products, the patentability of these ultimately depends on the novelty or inventiveness of the products themselves and the fact that the claimed product might be intermediate or final steps in a further construction is irrelevant. Hence, if the examiner has prior art drawn to claim 1 as a final product, that final product would thereby read on claim 1 as an intermediate product as well (see rejections below).

4. Claims 1, 8 and 19 have been amended to state that the membrane “is continuously dry during the entire assembly of the sensor”. It is unclear what the scope of “entire assembly of the sensor” would be because applicant never explicitly defines what they consider to be inherent in an “entire assembly”. For example, it is the examiner’s understanding that polymers are conventionally polymerized from a solution. Hence, the ionomer membrane at its point of synthesis is not dry (i.e. it would be present in the solvent utilized for the polymerization. So presumably applicant would not consider the actual polymerization itself to be part of the “entire assembly”. Absent a further clarification as to what the “entire assembly” encompasses, it is unclear how long the membrane must be “continuously dry” in order to meet the process claims.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3, 5-8, 10, 12-14, and 17-19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over EP 1 037 041 A2.

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7. EP '041 discloses a sensor cell for detecting gas comprising a substrate material (1, 11, 21), a sensing electrode (3, 13, 23) in contact with the substrate material (fig. 4), an ionomer membrane (5, 15, 25) that is in contact with the substrate and the gas. See fig. 1, 2, and 4 and paragraphs 0031 through 0033. With respect to the ionomer member being "dry", EP '041 never specifies anything about hydrating the membrane and further discloses utilizing the membrane at temperatures that exceed the boiling temperature of water (paragraph 0032). Hence, the membrane of EP '041 would read on "dry" giving the claim language its broadest reasonable interpretation. In addition, EP '041 discloses a step of drying the membrane (p. 5, line 5). Hence, even if the membrane of EP '041 were eventually hydrated, it is dry at this particular stage of sensor operation. Finally, with respect to the apparatus claims, the use of a membrane that is continuously dry appears to only be the part of the manufacturing on the sensor the determination of patentability for the claim is based on the product itself. Because the product of the claim is identical to the invention of EP '041 the process from which it was made is the same as or obvious over the process utilized by EP '041 (see *In re Thorpe*, 777 F.2d 695, 698). With respect to the new language "during the state of manufacturing", the examiner considered three possible ways of interpreting this language (see 112 rejection above). However, in each of the three possible interpretations of this language, the claims ultimately are drawn to a product and product claims (whether intermediate or final) are always interpreted base on the product itself and not how it was constructed or how (or when) it was utilized. Hence, applicant's amendment does not read free of the product claims.

8. EP '041 further discloses a counter electrode (4, 14, 24) and a reference electrode 28. See paragraph 0048 as an example. With respect to the limitations about wetting the membrane,

that is only the intended use of the apparatus and the intended use need not be given further due consideration in determining patentability.

9. With respect to a hole in the ionomer membrane, a membrane is inherently porous and those pores would read on the claimed "hole" giving the claim language its broadest reasonable interpretation. Furthermore, any number of holes in the membrane would presumably aligned with the electrodes.

10. With respect to the method of making the electrochemical sensor (those limitations not covered above), figure 4 shows an opening 22 through the substrate. EP '041 also specifies that the membrane may be bound to the substrate via use of hot pressing. Because EP '041 never set forth that the membrane must be hydrated before any bonding process (if ever), one possessing ordinary skill in the art would have been motivated to provide the membrane in either the wet or dry state during the entire assembly stage of the sensor construction.

11. With respect to the wetting the dry ionomer membrane, it doesn't appear that applicant is ever positively reciting a step of wetting a membrane.

Claim Rejections - 35 USC § 103

12. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

13. Claims 4, 11, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP '041 in view of either LaConti et al (USP 4,820,386) or Shen et al (USP 5,650,054).

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14. Claims 1, 3, 5-8, 10, 12-14, and 17-19 in the alternative are rejected in the alternative under 35 U.S.C. 103(a) as being unpatentable over EP '041 in view of either Shen or Fray et al (USP 4,879,005).

15. EP '041 teaches the use of a membrane (p. 5, lines 4-6), but is silent as to whether that membrane is wet or dry during the hot press stage (the drying of EP '041 is disclosed for the embodiment where the membrane is delivered as a solution). Both Fray and Shen teach that a membrane can be dried prior to any sensor assembly. In Fray, see col. 2, lines 39-46; in Shen, see col. 15, lines 21-25 and col. 16, lines 23-26. Air drying and desiccation would read on "dry" giving the claim language its broadest reasonable interpretation. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of either Fray or Shen for the sensor (or method of making the sensor) of EP '041 the prior art has recognized the desirability of working with a membrane in its dry state over a wet state.

16. With respect to the new limitation requiring the membrane to be "continuously dry during the entire assembly of the sensor", this can be reasonably interpreted as meaning that the membrane is continuously dry during the process of providing the substrate, connecting the membrane and aligning the opening. In other words, processes prior to the "providing the dry ionomer membrane" do not reasonably read on the "entire assembly" in the same manner that polymerizing the membrane from a solution does not read on the "entire assembly" either (see 112 rejections above). Because Shen and Fray teach drying the membrane prior to its use in the assembly process themselves, this new limitation is met by the prior art.

17. With respect to claims 4 and 11, LaConti teaches the use of a polymer layer 38 over the sensing electrode in order to prevent water interference which improves reproducibility (col. 3,

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lines 62-65 and col. 6, lines 59-68). Shen also teaches the use of a hydrophobic filter 212 over the electrode to control against dust and water (col. 11, lines 25-30). A polymer is a conventional material for a hydrophobic filter. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of LaConti or Shen for the sensor (or method for making the sensor) of EP '041 in order to improve the sensor reproducibility and repel water and dust. With respect to claims 15 and 16, both LaConti and Shen teach the use of reservoir in order to ensure the membrane is hydrated, which improves the response of the membrane. See Shen, col. 7, line 62 through col. 8, line 7; and LaConti, paragraph bridging col. 10 and 11.

Response to Arguments

18. Applicant's arguments filed 8-19-2004 have been fully considered but they are not persuasive. Much of the substance of the arguments (namely, those arguments drawn to the new claim language) has been addressed in the 112 and art rejections above. With respect to applicant's argument that EP '041 utilizes a solution of Nafion (p. 5, lines 4-8), the examiner points out that this is an *alternative* means of providing the ionomer membrane. The examiner was relying on the hot pressing means for providing the membrane for the method claims (for the product claims, this whole argument is irrelevant because product claims are interpreted based on what the product and not how it was made).

Conclusion

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaj Olsen whose telephone number is (571) 272-1344. The examiner can normally be reached on Monday through Thursday from 5:30 A.M. to 3:00 P.M. and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen, can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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November 4, 2004

A handwritten signature in black ink, appearing to read 'Kaj K. Olsen', with a stylized flourish extending to the right.

KAJ K. OLSEN
PRIMARY EXAMINER